

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 5, 7, 15, 16, 18, and 19 stand rejected under 35 U.S.C. 102(e) as allegedly being obvious over Maekawa. This contention however is respectfully traversed. It is respectfully suggested that Maekawa does not in fact teach the subject matter of these claims. Only having the present teaching, and working backwards, could it be erroneously postulated that Maekawa does so teach.

In column 11, Maekawa describes the steps of forming a crystallized amorphous layer. Apparently, this amorphous film is formed using a nickel or other transition metal as the catalyst, (see column 11, lines 59-60). Maekawa describes that an amorphous film is used. However, Maekawa describes both steps 90 and 91. For reasons set forth herein, it should be seen that these two steps describe depositing the same material, not two different materials.

Step 90 simply describes that an amorphous film is formed (see column 11, lines 51-52). Column 11, line 53 describes the actual formation of the layer of amorphous film, having a first thickness. Note that at this point, and at all points thereafter, there is only one layer of amorphous material. Step

94 describes that transition metal is introduced into the amorphous film, and does not refer to films, as would be expected if there were multiple films. This again shows that there is only one amorphous film layer. Nowhere is there any teaching or suggestion of a second, separate amorphous film.

This is even further evidenced from column 12, lines 24-29 which describe an alternative embodiment that is carried out "before step 92" of depositing a barrier layer over the transparent substrate, prior to depositing the amorphous film. Clearly this shows that since a barrier layer is described as being deposited before the step 92, and that barrier layer is deposited directly on the transparent substrate, that the step 93 must be the one and only step which carries out deposition of amorphous film directly on the substrate. If steps 90 and 92 were two different steps, depositing two different amorphous film, then column 12 would have described the additional step of depositing the barrier layer before step 90, not before step 92.

Therefore, it is clear that step 90 merely describes the whole process, step 92 describes the formation of the film, and that there are not two different films formed in the Maekawa reference. Therefore, the subject matter of claim 5, which recited forming first and second separate films, is not in any way taught or suggested by Maekawa.

The above analysis is in conformity with the embodiment of Figs. 15-18 of Maekawa, and Maekawa teaches that the Fig. 23 method roughly corresponds to Figs. 15-18 (see column 12, lines 29-31). Moreover, it appears that Fig. 15 shows only one a-silicon layer.

Since Maekawa does not teach or suggest forming a second amorphous semiconductor film on the first amorphous semiconductor film as required by the rejected claims, it is respectfully suggested that all of the rejections based on Maekawa or Maekawa in view of secondary references, are in error, and each of these rejections is therefore respectfully traversed.

Claim 5-7 and 23 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shimizu. The rejection alleges that Shimizu teaches forming an amorphous silicon layer, an amorphous germanium layer on the amorphous silicon layer, and converting these layers into a polycrystalline layer. The rejection admits that Shimizu is different from these claims, by stating that the first amorphous layer comprises germanium while Shimizu discloses forming a second layer comprising germanium. However, the rejection apparently contends that mere selection of order of process steps is *prima facie* unpatentable. However, this contention over-simplifies the present invention. The Examiner's attention is drawn to the explanation of crystal

growth as set forth on page 28, line 20 through page 31, line 1.

In fact, the order of layers is crucially important for this kind of crystal growth. Therefore, and for these reasons, the rejection is respectfully traversed.

Claims 15-16 and 18 are rejected based on the combination of Maekawa and Shimizu. These rejections are respectfully traversed for the similar reasons to those discussed above.

Claims 15-17 and 29 are rejected based on Shimizu and Teramoto. These rejections are again respectfully traversed for reasons set forth above. In addition, however, it is respectfully suggested that there is no suggestion or motivation for combining these references.

The additionally cited references used as secondary references do not make up the missing teaching, and it is respectfully suggested that each of these references should be allowable for these additional reasons.

Claim 5-7, 15-16, 19, and 31 stand rejected under judicially created obviousness-type double patenting based on claims 1, 7, 50-51, 59-60, and 66 of U.S. Patent No. 6,482,684. The rejection states that the only difference is the order that the semiconductor thin films are deposited. The objection reasons that this is *prima facie* obvious. However, as discussed above, the order of the layers is crucially important in this application. Therefore, it is respectfully suggested that the

order of the layers deposition produces a significant advantage; and specifically that the deposition is crucially important for the kind of crystal growth which is carried out according to the present system. For these reasons, it is respectfully suggested that all of these claims should be in condition for allowance.

In view of the above amendments and remarks, therefore, all of the claims should be in condition for allowance. A formal notice to that effect is respectfully solicited.